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Natural
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Montana
Basin Outlook Report
January 1, 2000

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How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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Bozeman, Montana

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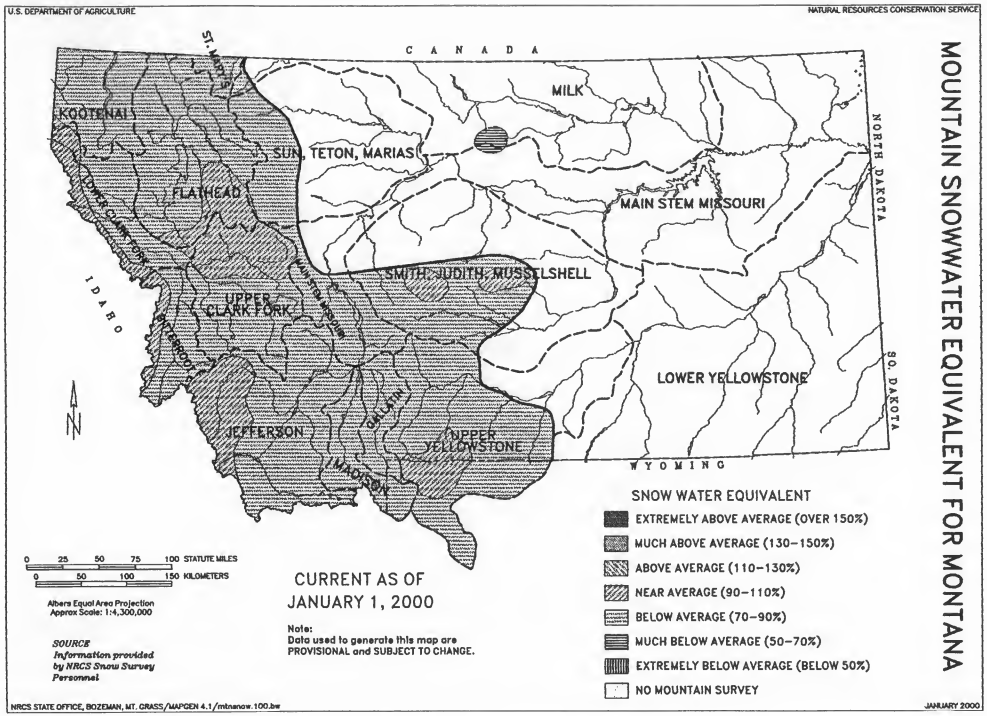
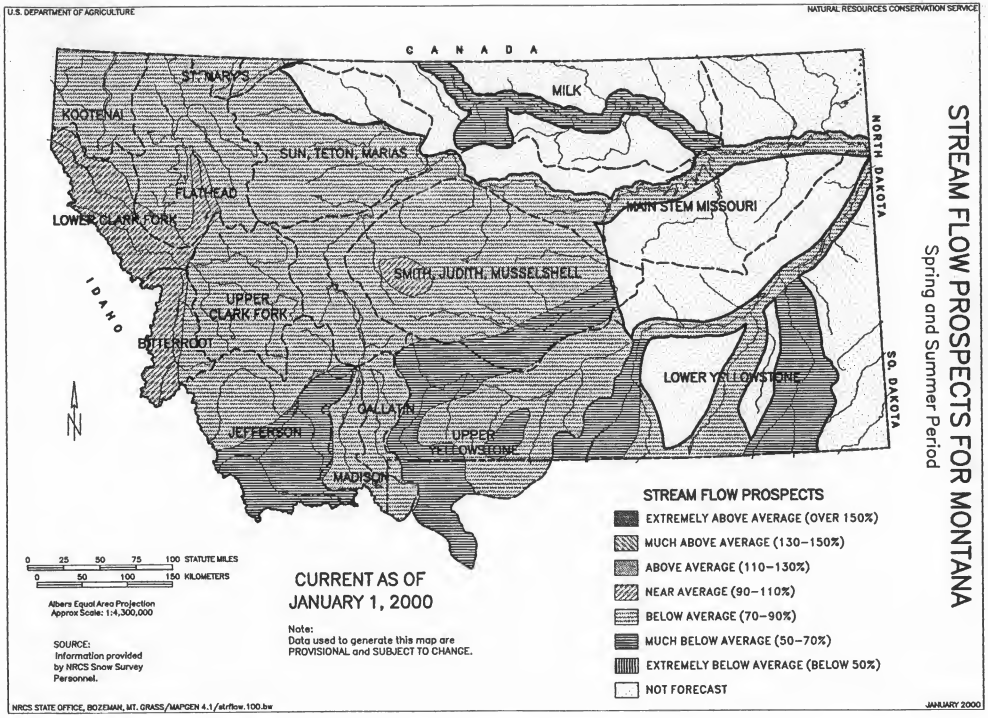

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
MOUNTAIN SNOWWATER EQUIVALENT FOR MONTANA
CANADA
ST. MARY
MILK
KOOTENAI
SUN, TETON, MARIAS
FLATHEAD
NORTH DAKOTA
MAIN STEM MISSOURI
KOOTENAI-CABINET
WHITEFISH
SMITH, JUDITH, MUSSELSHELL
IDAHO
UPPER CLARK FORK
BITTEROOT
LOWER YELLOWSTONE
SO. DAKOTA
JEFFERSON
MADISON
UPPER YELLOWSTONE
WYOMING
N
0 25 50 75 100 STATUTE MILES
0 50 100 150 KILOMETERS
Albers Equal Area Projection
Approx Scale: 1:4,300,000
SOURCE
Information provided by NRCS Snow Survey Personnel
CURRENT AS OF JANUARY 1, 2000
Note:
Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.
SNOW WATER EQUIVALENT
EXTREMELY ABOVE AVERAGE (OVER 150%)
MUCH ABOVE AVERAGE (130–150%)
ABOVE AVERAGE (110–130%)
NEAR AVERAGE (90–110%)
BELOW AVERAGE (70–90%)
MUCH BELOW AVERAGE (50–70%)
EXTREMELY BELOW AVERAGE (BELOW 50%)
NO MOUNTAIN SURVEY
NRCS STATE OFFICE, BOZEMAN, MT. GRASS/MAPGEN 4.1/mtsnanow.100.bw
JANUARY 2000



STREAM FLOW PROSPECTS FOR MONTANA

Spring and Summer Period

SUMMARY OF MONTANA SNOTEL AND SNOW COURSE DATA

JANUARY 2000

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ALBRO LAKE PILLOW	8300	1/01/00	---	4.4	10.2	10.4
ASHLEY LAKE	4000	12/29/99	8	1.6	2.6	2.4
ASHLEY DIVIDE	4820	12/29/99	10	2.2	3.7	3.4
BADGER PASS PILLOW	6900	1/01/00	---	10.6	20.5	14.2
BANFIELD MTN PILLOW	5600	1/01/00	---	7.3	13.4	9.0
BARKER LAKES PILLOW	8250	1/01/00	---	3.3	6.9	6.8
BASIN CREEK PILLOW	7180	1/01/00	---	2.7	5.0	3.6
BEAGLE SPGS PILLOW	8850	1/01/00	---	2.9	5.6	3.7
BEAVER CREEK PILLOW	7850	1/01/00	---	6.8	7.8	7.9
BISSON CREEK PILLOW	4920	1/01/00	---	3.1	3.2	3.9
BLACK BEAR PILLOW	7950	1/01/00	---	12.3	20.1	15.6
BLACK PINE PILLOW	7100	1/01/00	---	4.3	6.9	4.9
BLACKTAIL	5650	12/27/99	21	5.5	6.7	5.8
BLOODY DICK PILLOW	7550	1/01/00	---	5.7	6.7	5.1
BOULDER MTN PILLOW	7950	1/01/00	---	6.8	11.0	8.4
BOX CANYON PILLOW	6700	1/01/00	---	4.7	4.5	4.8
BOXELDER CREEK	5100	12/29/99	11	2.3	5.5	4.3
BRACKETT CR PILLOW	7320	1/01/00	---	7.4	7.7	8.5
CALVERT CR PILLOW	6430	1/01/00	---	4.4	5.5	4.1
CARROT BASIN PILLOW	9000	1/01/00	---	10.3	13.8	11.9
CHESSMAN RESERVOIR	6200	12/29/99	4	.6	2.2	1.5
CLOVER MDW PILLOW	8800	1/01/00	---	6.2	7.7	7.9
COLE CREEK PILLOW	7850	1/01/00	---	3.4	4.9	7.7
COMBINATION PILLOW	5600	1/01/00	---	1.4	2.7	2.3
COPPER BOTTOM PILLOW	5200	1/01/00	---	4.6	8.5	4.7
COPPER CAMP PILLOW	6950	1/01/00	---	11.5	20.3	13.6
COYOTE HILL	4200	12/28/99	16	3.6	4.4	4.1
CRYSTAL LAKE PILLOW	6050	1/01/00	---	6.1	4.7	5.3
DAISY PEAK	7600	12/28/99	18	4.0	5.6	5.1
DAISY PEAK PILLOW	7600	1/01/00	---	4.2	5.8	6.1
DAISY PEAK	7600	12/28/99	18	4.0	5.6	5.1
DALY CREEK PILLOW	5780	1/01/00	---	4.0	6.8	5.3
DARKHORSE LK. PILLOW	8700	1/01/00	---	15.9	14.9	15.5
DEADMAN CR PILLOW	6450	1/01/00	---	6.7	5.5	4.4
DISCOVERY BASIN	7050	12/29/99	16	3.4	4.6	4.4
DIVIDE PILLOW	7800	1/01/00	---	2.8	4.1	4.8
DIX HILL	6400	1/02/00	20	4.9	4.5	5.0
DUPUYER CREEK PILLOW	5750	1/01/00	---	2.3	5.6	4.8
EMERY CREEK PILLOW	4350	1/01/00	---	6.1	8.0	7.2
FISH CREEK	8000	12/28/99	12	2.9	7.2	4.5
FISHER CREEK PILLOW	9100	1/01/00	---	14.0	18.0	15.6
FLATTOP MTN PILLOW	6300	1/01/00	---	15.3	29.3	21.0
FROHNER MDWS PILLOW	6480	1/01/00	---	2.7	4.0	3.4

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
GARVER CREEK PILLOW	4250	1/01/00	---	3.9	5.9	5.1
GRAVE CRK PILLOW	4300	1/01/00	---	6.1	7.4	7.7
HAND CREEK PILLOW	5030	1/01/00	---	4.2	6.2	5.5
HAWKINS LAKE PILLOW	6450	1/01/00	---	8.7	16.5	13.0
HEBGEN DAM	6550	12/31/99	28	5.8	3.4	4.9
HELL ROARING DIVIDE	5770	12/27/99	44	11.3	14.8	13.0
HOLBROOK	4530	1/01/00	---	3.3E	4.4	4.0
HOODOO BASIN PILLOW	6050	1/01/00	---	15.5	26.9	19.0
JOHNSON PARK	6450	12/28/99	16	4.4	4.0	3.3
KRAFT CREEK PILLOW	4750	1/01/00	---	7.4	6.1	6.6
LAKEVIEW RDG. PILLOW	7400	1/01/00	---	1.8	6.4	5.4
LEMHI RIDGE PILLOW	8100	1/01/00	---	4.2	5.1	4.4
LICK CREEK PILLOW	6860	1/01/00	---	3.6	3.4	5.6
LONE MOUNTAIN PILLOW	8880	1/01/00	---	6.7	8.3	7.5
LOWER TWIN PILLOW	7900	1/01/00	---	5.4	8.7	9.5
LUBRECHT PILLOW	4680	1/01/00	---	2.4	2.8	2.4
LUBRECHT FOREST NO 3	5450	1/02/00	14	3.0	3.3	2.6
LUBRECHT FOREST NO 4	4650	1/02/00	6	1.0	1.0	1.4
LUBRECHT FOREST NO 6	4040	1/02/00	8	1.2	1.2	1.6
LUBRECHT HYDROPLOT	4200	1/02/00	14	2.0	3.1	2.8
MADISON PLT PILLOW	7750	1/01/00	---	6.6	15.4	10.1
MANY GLACIER PILLOW	4900	1/01/00	---	4.9	9.5	7.3
MARIAS PASS	5250	12/30/99	20	5.4	10.7	6.7
MAYNARD CREEK	6210	12/28/99	16	4.2	3.2	5.8
MONUMENT PK PILLOW	8850	1/01/00	---	9.1	11.1	9.5
MOSS PEAK PILLOW	6780	1/01/00	---	11.8	15.8	16.1
MT LOCKHART PILLOW	6400	1/01/00	---	7.0	14.4	8.8
MULE CREEK PILLOW	8300	1/01/00	---	7.0	9.1	6.8
NEVADA RIDGE PILLOW	7020	1/01/00	---	7.3	10.6	6.0
NEZ PERCE CMP PILLOW	5650	1/01/00	---	6.3	7.8	5.7
NOISY BASIN PILLOW	6040	1/01/00	---	16.1	16.7	17.2
N.F. ELK CR PILLOW	6250	1/01/00	---	4.9	6.8	4.6
NF JOCKO PILLOW	6330	1/01/00	---	18.4	20.8	19.1
N.E. ENTRANCE PILLOW	7350	1/01/00	---	5.1	5.0	4.0
OPHIR PARK	7150	1/02/00	24	6.0	6.9	7.0
PETERSON MDW PILLOW	7200	1/01/00	---	2.8	4.6	4.2
PICKFOOT CRK PILLOW	6650	1/01/00	---	3.6	5.9	4.9
PIKE CREEK PILLOW	5930	1/01/00	---	8.6	16.8	11.4
PIPESTONE PASS	7200	12/28/99	5	1.2	3.6	2.1
PLACER BASIN PILLOW	8830	1/01/00	---	6.9	8.0	9.4
PORCUPINE PILLOW	6500	1/01/00	---	2.1	2.1	3.2
ROCKER PEAK PILLOW	8000	1/01/00	---	4.1	6.7	6.4
ROCKY BOY PILLOW	4700	1/01/00	---	1.3	2.5	2.2
ROCKY BOY	4700	12/29/99	4	.7	4.9	1.8
SADDLE MTN PILLOW	7900	1/01/00	---	8.5	14.7	11.1
SHORT CREEK PILLOW	7000	1/01/00	---	1.7	2.3	2.5
SHOWER FALLS PILLOW	8100	1/01/00	---	8.0	8.2	10.4
SKALKAHO PILLOW	7260	1/01/00	---	8.6	14.9	9.8

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
S.F. SHIELDS PILLOW	8100	1/01/00	---	4.4	5.6	7.5
SPOTTED BEAR MTN.	7000	1/01/00	---	5.6E	7.0	6.6
SPUR PARK PILLOW	8100	1/01/00	---	8.9	11.3	9.8
SLEEPING WOMAN PILL	6150	1/01/00	---	5.4	9.8	6.1
STAHL PEAK PILLOW	6030	1/01/00	---	13.7	18.6	16.0
STEMPLE PASS	6600	12/30/99	19	4.6	--	--
STORM LAKE	7780	12/29/99	18	3.8	6.6	5.4
STUART MOUNTAIN	7400	1/01/00	---	14.0E	19.1	13.4
STUART MOUNTAIN PILL	7400	1/01/00	---	12.9	19.0	12.6
SUCKER CREEK	3960	12/29/99	0	.0	3.8	.6
TAYLOR ROAD	4080	12/29/99	3	.3	4.8	2.0
TEN MILE LOWER	6600	12/29/99	10	2.3	3.5	3.0
TEN MILE MIDDLE	6800	12/29/99	14	3.0	5.0	4.7
TEPEE CREEK PILLOW	8000	1/01/00	---	4.7	5.6	5.7
TIZER BASIN PILLOW	6840	1/01/00	---	4.4	4.5	4.8
TRINKUS LAKE	6100	1/01/00	---	16.5E	18.6	18.7
TRUMAN CREEK	4060	12/30/99	5	1.0	2.3	2.0
TV MOUNTAIN	6800	1/03/00	29	6.4	10.3	7.2
TWELVEMILE PILLOW	5600	1/01/00	---	7.8	10.7	7.2
TWENTY-ONE MILE	7150	12/30/99	24	5.5	9.0	7.3
TWIN LAKES PILLOW	6400	1/01/00	---	17.3	25.4	16.3
UPPER HOLLAND LAKE	6200	1/01/00	---	14.6E	15.0	15.8
WALDRON PILLOW	5600	1/01/00	---	3.9	8.1	5.0
WARM SPRINGS PILLOW	7800	1/01/00	---	8.2	11.2	9.4
WEASEL DIVIDE	5450	12/29/99	40	11.9	18.6	15.3
WEST YELLOWSTONE	6700	12/29/99	16	3.0	5.8	4.8
WEST YELL'ST PILLOW	6700	1/01/00	---	3.2	6.2	5.1
WHISKEY CREEK PILLOW	6800	1/01/00	---	5.0	8.4	7.0
WHITE MILL PILLOW	8700	1/01/00	---	10.6	11.3	11.4
WOOD CREEK PILLOW	5960	1/01/00	---	3.5	6.8	4.4

Montana Water Supply Outlook Report as of January 1, 2000

Storms have been somewhat illusive to the mountains of Montana. Snowfall has been hit or miss and there have not been wide spread major storms so far this winter. Like last winter there has been little snowfall in the valleys and low mountain elevations. There were some new record high temperatures set during December at valley stations mainly in the central third of Montana and near record temperatures in many valley areas east of the Divide.

Snowpack

As of January 1, mountain snow water contents were ranging from well below average to near average and generally about half to two-thirds of last year at this time. On January 1, mountain snowpack should be about 40 percent of the winter accumulation and by February 1 should be about 60 percent. Mountain snowpacks are generally below to well below average at middle and lower elevations, generally below 5,500 feet in the north and 7,500 to 8,000 feet in the south and near to below average at higher elevations. Mountain snow water content statewide was 84 percent of average and 69 percent of last year. West of the Continental Divide, mountain snow water content was 88 percent of average and 68 percent of last year and East of the Continental Divide, was 76 percent of average and 66 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	88	68
KOOTENAI	92	65
FLATHEAD	84	71
UPPER CLARK FORK	86	69
BITTERROOT	95	64
LOWER CLARK FORK	98	63
MISSOURI	78	66
MISSOURI HEADWATERS	78	70
JEFFERSON	76	65
MADISON	75	67
GALLATIN	81	86
MISSOURI MAINSTEM	81	61
HEADWATERS MAINSTEM	82	66
SMITH-JUDITH-MUSSELSHELL	94	85
SUN-TETON-MARIAS	75	50
MAINSTEM ABOVE FT. PECK RES	83	64
MILK	43	23
ST. MARY	71	52
ST. MARY & MILK	64	44
YELLOWSTONE	73	70
UPPER YELLOWSTONE	80	75
LOWER YELLOWSTONE (WYOMING)	66#	62
WIND	46	41
SHOSHONE	69	55
BIGHORN	72	67
TONGUE	85	98
POWDER	82	95

- Lower Yellowstone snow water content is at the lowest of record for the period 1981 through 1999.

Precipitation

December mountain and valley precipitation across the state was 99 percent of average and 78 percent of last year, while the water year precipitation was 95 percent of average and 81 percent of last year.

West of the Continental Divide, December mountain and valley precipitation was 99 percent of average and 74 percent of last year and the water year precipitation was 109 percent of average and 88 percent of last year. East of the Divide, December mountain and valley precipitation was 98 percent of average and 84 percent of last year and the water year precipitation was 82 percent of average and 73 percent of last year.

RIVER BASIN	DECEMBER % OF AVERAGE	WATER YEAR % OF AVERAGE
COLUMBIA	99	109
KOOTENAI	97	114
FLATHEAD	96	120
UPPER CLARK FORK	99	96
BITTERROOT	112	103
LOWER CLARK FORK	104	112
MISSOURI	98	83
JEFFERSON	108	76
MADISON	114	76
GALLATIN	119	75
MISSOURI MAINSTEM	86	71
SMITH-JUDITH-MUSSELSHELL	110	84
SUN-TETON-MARIAS	78	117
MILK	30	75
ST. MARY	94	124
YELLOWSTONE	96	71
UPPER YELLOWSTONE	102	76
LOWER YELLOWSTONE (WYOMING)	93	68
WIND	55	47
SHOSHONE	92	74
BIGHORN	116	80
TONGUE	148	86
POWDER	137	88

Reservoirs

Major reservoir storage statewide were 107 percent of average and 105 percent of last year.

Reservoir storage west of the Continental Divide was 108 percent of average and 108 percent of last year. East of the Continental Divide, reservoir storage were 106 percent of average and 100 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	108	108
KOOTENAI	119	103
FLATHEAD	100	114
UPPER CLARK FORK	143	89
BITTERROOT	55	100
LOWER CLARK FORK	98	95
MISSOURI	105	98
JEFFERSON	112	102
MADISON	133	102
GALLATIN	NO REPORT	--
MISSOURI MAINSTEM	94	94
SMITH-JUDITH-MUSSELSHELL	96	81
SUN-TETON-MARIAS	121	106
MILK	92	97
ST. MARY	90	201
YELLOWSTONE	108	105
UPPER YELLOWSTONE	95	98
LOWER YELLOWSTONE	109	105

Streamflow

Across Montana, streamflows are forecast to range between 64 and 97 percent of average.

West of the Continental Divide, streamflows are forecast to range between 74 and 103 percent of average and east of the Continental Divide, streamflows are forecast to range between 55 and 91 percent of average.

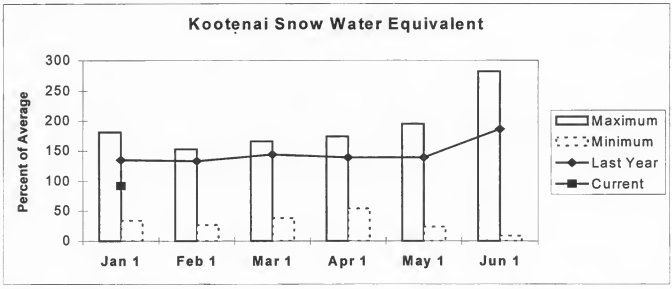
Below are the River Basin streamflow forecast summaries for the period April 1 through July 31. THESE FORECASTS ASSUME NEAR NORMAL SPRING CONDITIONS AND DO NOT ACCOUNT FOR WELL BELOW AVERAGE (70% or less) OR WELL ABOVE AVERAGE (130% or more) SNOWMELT OR SPRING RAIN. Specific forecast probabilities are available in each individual River Basin Report.

RIVER BASIN	April-July THIS YEAR % OF AVERAGE	April-July LAST YEAR % OF AVERAGE
COLUMBIA	74 to 103	103 to 129
KOOTENAI	65 to 106	93 to 120
FLATHEAD	82 to 100	101 to 120
UPPER CLARK FORK	65 to 98	103 to 136
BITTERROOT	82 to 109	113 to 140
LOWER CLARK FORK	76 to 104	104 to 131
MISSOURI	59 to 96	88 to 124
JEFFERSON	47 to 86	87 to 121
MADISON	76 to 94	99 to 114
GALLATIN	73 to 97	78 to 100
MISSOURI MAINSTEM	52 to 85	85 to 124
SMITH-JUDITH-MUSSELSHELL	66 to 106	80 to 122
SUN-TETON-MARIAS	63 to 106	104 to 151
MILK	39 to 101	82 to 137
ST. MARY	79 to 94	87 to 103
YELLOWSTONE	86 to 113	86 to 113
UPPER YELLOWSTONE	63 to 87	90 to 114
LOWER YELLOWSTONE	51 to 80	82 to 112

NOTE: The *APRIL-JULY LAST YEAR % OF AVERAGE* column above, is what was forecast last year, not what actually occurred.

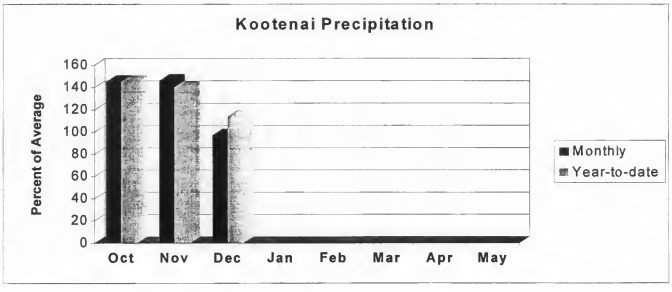
Kootenai River Basin in Montana

Snowpack conditions in the Kootenai River Basin were near average. Snow water content was 92 percent of average and 65 percent of last year.



January maximum swe was established in 1997 and minimum was in 1977; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1974 and minimum swe was in 1977; May maximum swe was in 1974 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during December was 102 percent of average and 85 percent of last year. Valley precipitation during December was 57 percent of average and 43 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 114 percent of average and 95 percent of last year.



Lake Koocanusa storage was 119 percent of average and 103 percent of last year.

KOOTENAI RIVER BASIN in Montana
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Chance Of Exceeding *		Future Conditions 50% (Most Probable)		======= Wetter ======>> Chance Of Exceeding *		30-Yr Avg.
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	(1000AF)
TOBACCO RIVER nr Eureka	APR-JUL	72	101	120	90	139	168	133
	APR-SEP	78	109	130	88	151	182	147
LIBBY RES Inflow (1,2)	APR-JUL	4278	5579	6170	107	6761	8062	5779
	APR-SEP	5010	6537	7230	107	7923	9450	6772
FISHER RIVER nr Libby	APR-JUL	76	141	185	79	229	294	234
	APR-SEP	87	154	200	80	246	313	250
YAAK RIVER nr Troy	APR-JUL	229	322	385	80	448	541	483
	APR-SEP	246	341	405	80	469	564	505
KOOTENAI at Leonia (1,2)	APR-JUL	5303	6931	7670	107	8409	10037	7199
	APR-SEP	6098	7970	8820	107	9670	11542	8275

KOOTENAI RIVER BASIN in Montana
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LAKE KOOCANUSA	5748.0	3643.0	3554.0	3050.0

KOOTENAI RIVER BASIN in Montana
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
KOOTENAY in CANADA	14	76	105
KOOTENAI MAINTSTEM	3	63	113
TOBACCO	3	71	81
FISHER	1	68	76
YAAK	2	56	70
KOOTENAI in MONTANA	9	65	92
KOOTENAI ab BONNERS FERRY	23	69	99

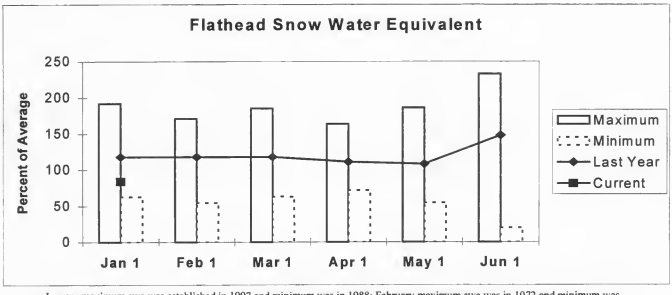
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

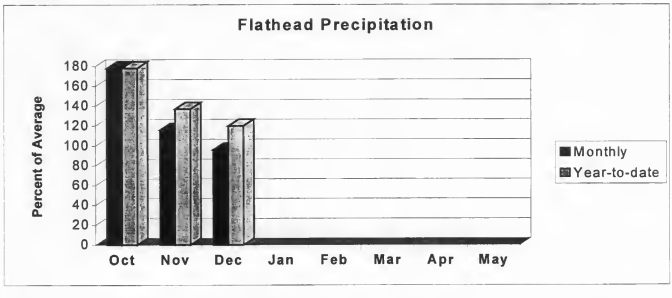
Flathead River Basin

Snowpack conditions in the Flathead River Basin were below average. Snow water content was 84 percent of average and 71 percent of last year.



January maximum swe was established in 1997 and minimum was in 1988; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1992; May maximum swe was in 1972 and minimum was in 1992; and June maximum swe was in 1974 and minimum was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during December was 98 percent of average and 75 percent of last year. Valley precipitation during December was 63 percent of average and 59 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 120 percent of average and 102 percent of last year.



Combined Camas reservoir storage was 143 percent of average and 81 percent of last year; combined Mission Valley reservoir storage was 76 percent of average and 102 percent of last year; Hungry Horse storage was at 112 percent of average and 111 percent of last year; and Flathead Lake storage was 75 percent of average and 123 percent of last year.

FLATHEAD RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<======= Drier ====== Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	Future Conditions 50% (Most Probable) (1000AF)	(% AVG.)	======= Wetter =====>> 30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
NF FLATHEAD nr Columbia Falls	APR-JUL	1207	1405	1540	93	1675	1873	1662
	APR-SEP	1350	1564	1710	93	1856	2070	1836
MF FLATHEAD nr West Glacier	APR-JUL	1177	1369	1500	92	1631	1823	1638
	APR-SEP	1301	1503	1640	92	1777	1979	1788
HUNGRY HORSE Reservoir Inflow (1,2)	APR-JUL	1261	1694	1890	92	2086	2519	2051
	APR-SEP	1386	1822	2020	93	2218	2654	2184
FLATHEAD at Columbia Falls (2)	APR-JUL	3804	4546	5050	92	5554	6296	5482
	APR-SEP	4174	4958	5490	92	6022	6806	5960
STILLWATER nr Whitefish	APR-JUL	95	134	160	85	186	225	189
	APR-SEP	104	146	175	84	204	246	209
WHITEFISH nr Kalispell	APR-JUL	63	78	88	85	98	113	104
	APR-SEP	70	87	99	85	111	128	116
SWAN RIVER nr Bigfork	APR-JUL	416	499	555	95	611	694	583
	APR-SEP	478	568	630	95	692	782	665
FLATHEAD Lake Inflow (1,2)	APR-JUL	4342	5461	5970	93	6479	7598	6390
	APR-SEP	4808	5951	6470	93	6989	8132	6926

FLATHEAD RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CAMAS (4)	45.2	26.6	32.8	18.6
MISSION VALLEY (8)	100.0	25.8	25.2	33.8
HUNGRY HORSE	3451.0	2903.0	2604.0	2586.0
FLATHEAD LAKE	1791.0	981.0	800.5	1305.0

FLATHEAD RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
NF FLATHEAD in CANADA	2	60	47
NF FLATHEAD in MONTANA	6	64	79
MIDDLE FORK FLATHEAD	5	54	76
SOUTH FORK FLATHEAD	6	89	89
STILLWATER-WHITEFISH	4	71	79
SWAN	6	91	91
MISSION VALLEY	3	79	79
LITTLE BITTERROOT-ASHLEY	4	67	76
JOCKO	4	72	96
FLATHEAD in MONTANA	27	71	84
FLATHEAD RIVER BASIN	29	71	82

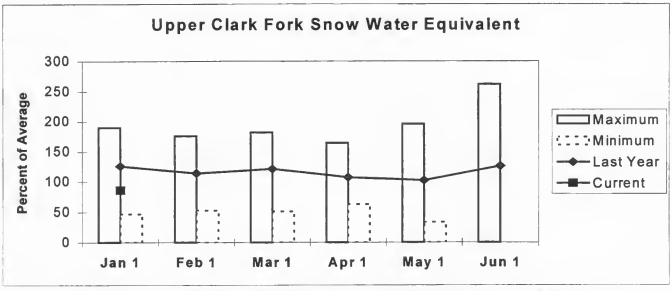
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

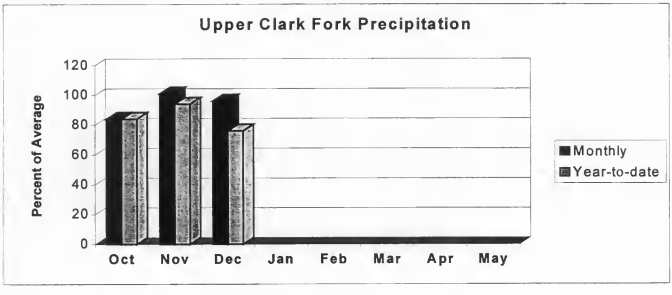
Upper Clark Fork River Basin

Snowpack conditions in the Upper Clark Fork River Basin were below average. Snow water content was 86 percent of average and 69 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum was in 1994; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1975 and minimum swe was in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during December was 100 percent of average and 75 percent of last year. Valley precipitation during December was 83 percent of average and 73 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 96 percent of average and 76 percent of last year.



Lower Willow Creek storage was 129 percent of average and 86 percent of last year; and Nevada Creek storage was 149 percent of average and 91 percent of last year.

UPPER CLARK FORK RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WARM SPRINGS CK at Anaconda	APR-JUL	11.0	21	28	72	34	44	38
	APR-SEP	15.3	26	34	72	42	53	47
LITTLE BLACKFOOT nr Garrison	APR-JUL	22	47	65	78	83	108	83
	APR-SEP	26	53	71	80	89	117	89
FLINT CREEK nr Southern Cross	APR-JUL	4.3	8.4	11.2	79	14.0	18.1	14.2
	APR-SEP	4.4	9.5	13.0	78	16.5	22	16.7
FLINT CREEK blw Boulder Ck	APR-JUL	21	36	46	81	56	71	57
	APR-SEP	29	47	59	81	71	89	73
LOWER WILLOW CK RES Inflow	APR-JUL	3.9	7.9	10.7	76	13.5	17.5	14.0
	APR-SEP	4.5	8.7	11.5	78	14.3	18.5	14.8
MF ROCK CREEK nr Philipsburg	APR-JUL	31	44	53	80	62	75	66
	APR-SEP	35	49	59	80	69	83	74
ROCK CREEK nr Clinton	APR-JUL	155	212	250	85	288	345	296
	APR-SEP	182	243	285	86	327	388	333
NEVADA CREEK nr Finn	APR-JUL	4.9	10.6	14.5	76	18.4	24	19.1
	APR-SEP	6.0	12.0	16.0	76	20	26	21
CLEARWATER nr Clearwater	APR-JUL	95	125	145	84	165	195	172
	APR-SEP	98	129	150	83	171	202	181
BLACKFOOT RIVER nr Bonner	APR-JUL	490	645	750	90	855	1010	835
	APR-SEP	560	724	835	90	946	1110	926
CLARK FORK abv Milltown	APR-JUL	296	462	575	88	688	854	652
	APR-SEP	356	540	665	88	790	974	755
CLARK FORK abv Missoula	APR-JUL	799	1115	1330	89	1545	1861	1487
	APR-SEP	924	1267	1500	89	1733	2076	1681

UPPER CLARK FORK RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GEORGETOWN LAKE		NO REPORT		
LOWER WILLOW CREEK	4.9	1.8	2.1	1.4
NEVADA CREEK	12.6	5.8	6.4	3.9

UPPER CLARK FORK RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CLARK FORK ab FLINT CREEK	9	69	81
FLINT CREEK	5	62	74
ROCK CREEK	3	58	78
CLARK FORK ab BLACKFOOT	14	66	81
BLACKFOOT	14	74	96
UPPER CLARK FORK BASIN	26	69	86

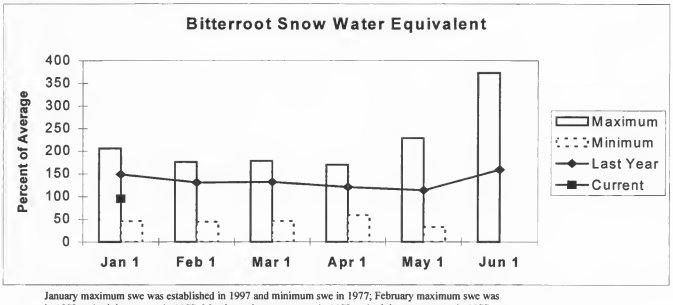
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural voluma - actual volume may be affected by upstream water management.

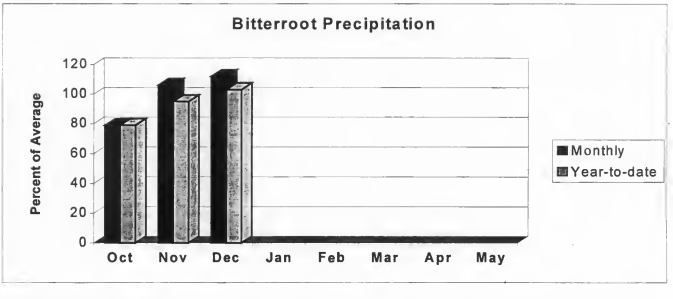
Bitterroot River Basin

Snowpack conditions in the Bitterroot River Basin were near average. Snow water content was 95 percent of average and 64 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1977; May maximum swe was in 1972 and minimum swe was in 1987; and June maximum swe was 1972 and 1974 and minimum swe was in 1987 and 1992. Average is for the period 1961 through 1990.

Mountain precipitation during December was 114 percent of average and 73 percent of last year. Valley precipitation during December was 83 percent of average and 43 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 103 percent of average and 75 percent of last year.



Painted Rocks Lake storage was 55 percent of average and 101 percent of last year and Como storage was 54 percent of average and 98 percent of last year.

BITTERROOT RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WF BITTERROOT nr Conner (2)	APR-JUL	83	120	145	95	170	207	152
	APR-SEP	93	132	158	95	184	223	166
BITTERROOT nr Darby	APR-JUL	274	379	450	92	521	626	491
	APR-SEP	316	422	495	92	568	674	540
COMO RESERVOIR Inflow	APR-JUL	60	71	79	100	87	98	79
	APR-SEP	64	75	83	100	91	102	83
SKALKAHO CK nr Hamilton	APR-JUL	30	40	46	100	52	62	46
	APR-SEP	36	46	53	100	60	70	53
BITTERROOT at Missoula	APR-JUL	734	993	1170	90	1347	1606	1300
	APR-SEP	840	1096	1270	89	1444	1700	1420

BITTERROOT RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
PAINTED ROCKS LAKE	31.7	7.6	7.5	13.9
COMO	34.9	4.9	5.0	9.0

BITTERROOT RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WEST FORK BITTERROOT	2	66	88
EAST SIDE BITTERROOT	3	58	81
WEST SIDE BITTERROOT	3	65	103
BITTERROOT RIVER BASIN	7	64	95

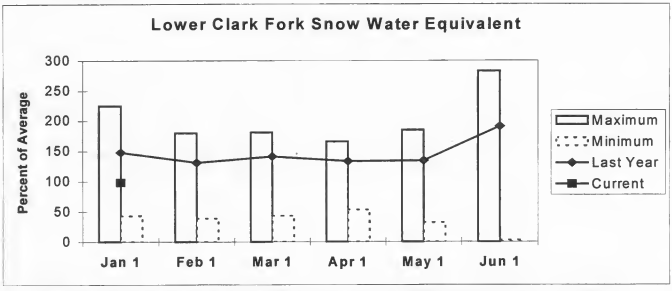
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

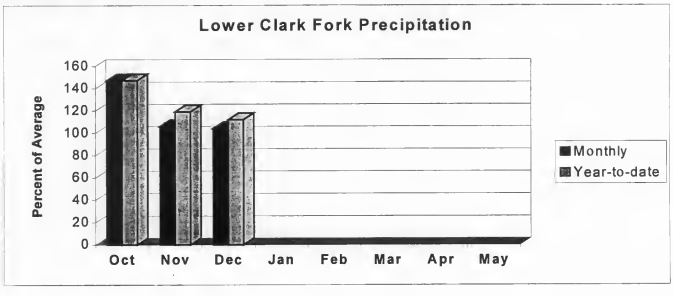
Lower Clark Fork River Basin

Snowpack conditions in the Lower Clark Fork River Basin were near average. Snow water content was 98 percent of average and 63 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum swe was in 1981; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1977. Average is for the period 1961 through 1990.

Mountain precipitation during December was 108 percent of average and 77 percent of last year. Valley precipitation during December was 90 percent of average and 59 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 112 percent of average and 85 percent of last year.



Noxon Rapids storage was 97 percent of average and 99 percent of last year.

LOWER CLARK FORK RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CLARK FORK abv Missoula	APR-JUL	799	1115	1330	89	1545	1861	1487
	APR-SEP	924	1267	1500	89	1733	2076	1681
CLARK FORK blw Missoula	APR-JUL	1557	2118	2500	90	2882	3443	2788
	APR-SEP	1796	2376	2770	89	3164	3744	3099
CLARK FORK at St. Regis (1)	APR-JUL	1504	2773	3350	91	3927	5196	3686
	APR-SEP	1670	3080	3720	91	4360	5770	4095
CLARK FORK nr Plains (1,2)	APR-JUL	5189	8195	9560	92	10925	13931	10450
	APR-SEP	5694	8999	10500	92	12001	15306	11470
THOMPSON nr Thompson Falls	APR-JUL	119	164	195	91	226	271	214
	APR-SEP	139	187	220	92	253	301	240
PROSPECT CREEK at Thompson Falls	APR-JUL	75	96	110	89	124	145	123
	APR-SEP	79	100	115	87	130	151	132
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	5469	8860	10400	89	11940	15331	11730
	APR-SEP	6073	9805	11500	89	13195	16927	12910

LOWER CLARK FORK RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
NOXON RAPIDS	335.0	307.5	312.1	317.1

LOWER CLARK FORK RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LOWER CLARK FORK BASIN	8	63	98

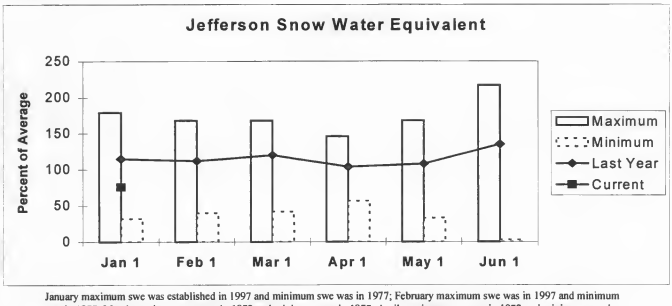
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

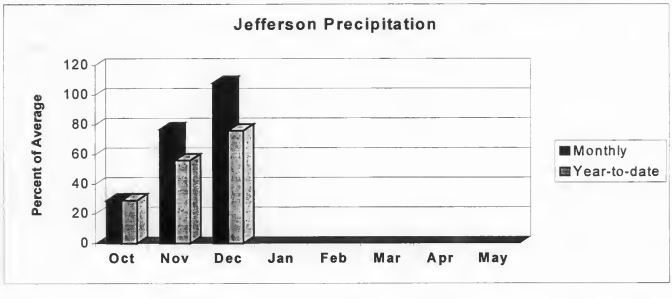
Jefferson River Basin

Snowpack conditions in the Jefferson River Basin were below average. Snow water content was 76 percent of average and 65 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1977; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during December was 110 percent of average and 93 percent of last year. Valley precipitation during December was 85 percent of average and 53 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 76 percent of average and 68 percent of last year.



Lima storage was 131 percent of average and 93 percent of last year; Clark Canyon storage was 108 percent of average and 104 percent of last year; and Ruby River storage was not available.

JEFFERSON RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LIMA RESERVOIR Inflow (2)	APR-JUL	18.2	44	62	64	80	106	97
	APR-SEP	16.0	45	65	62	85	114	105
BEAVERHEAD RIVER nr Grant	APR-JUL	17.0	54	80	61	106	143	132
	APR-SEP	16.0	61	92	59	123	168	155
BEAVERHEAD RIVER at Barretts (2)	APR-JUL	22	72	105	61	138	188	172
	APR-SEP	27	85	125	62	165	223	203
RUBY RIVER Reservoir Inflow	APR-JUL	21	38	50	60	62	79	83
	APR-SEP	27	47	60	61	73	93	99
BIG HOLE RIVER nr Melrose	APR-JUL	242	416	535	84	654	828	641
	APR-SEP	269	457	585	84	713	901	697
BOULDER RIVER nr Boulder	APR-JUL	17.5	46	65	77	84	113	85
	APR-SEP	18.8	49	70	77	91	121	91
WILLOW CREEK Reservoir Inflow	APR-JUL	1.1	6.3	11.5	65	16.7	25	17.7
	APR-SEP	1.2	7.5	13.5	68	19.5	28	20
JEFFERSON RIVER nr Three Forks (2)	APR-JUL	194	430	590	60	750	986	985
	APR-SEP	176	428	600	59	772	1024	1012

JEFFERSON RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LIMA	84.0	42.3	45.5	32.4
CLARK CANYON	255.6	153.9	147.7	142.1
RUBY RIVER		NO REPORT		

JEFFERSON RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
BEAVERHEAD	8	73	86
RUBY	5	62	58
BIGHOLE	10	73	90
BOULDER	5	56	68
JEFFERSON RIVER BASIN	23	65	76

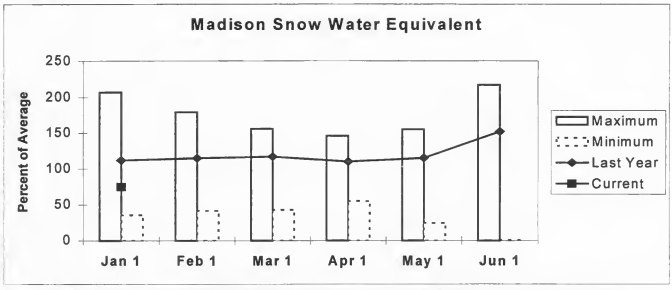
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is naturel volume - actual volume may be effected by upstream water management.

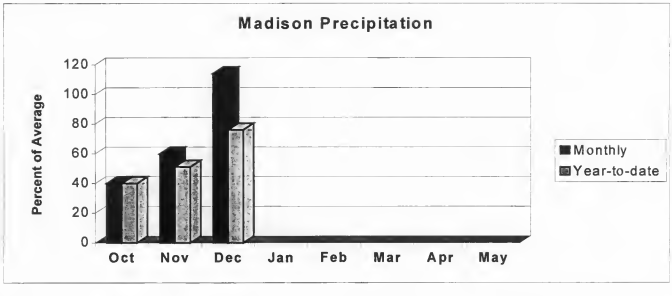
Madison River Basin

Snowpack conditions in the Madison River Basin were below average. Snow water content was 75 percent of average and 67 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977; April maximum swe was in 1997 and minimum was in 1977; May maximum swe was in 1997 and minimum swe was in 1977; and June maximum swe was in 1995 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain and valley precipitation during December was 114 percent of average and 120 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 76 percent of average and 69 percent of last year.



Ennis Lake storage was 86 percent of average and 86 percent of last year and Hebgen Lake storage was 140 percent of average and 104 percent of last year.

MADISON RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ===== Chance Of Exceeding *		Future Conditions 50% (Most Probable)		======= Wetter =====>> Chance Of Exceeding *		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
HEBGEN Reservoir Inflow	APR-JUL	239	290	325	86	360	411	380
	APR-SEP	315	374	415	85	456	515	486
ENNIS Reservoir Inflow (2)	APR-JUL	409	499	560	85	621	711	662
	APR-SEP	520	627	700	84	773	880	831

MADISON RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ENNIS LAKE	41.0	28.9	33.6	33.7
HEBGEN LAKE	377.5	344.8	331.5	246.8

MADISON RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
MADISON abv HEBGEN LAKE	6	57	73
MADISON blw HEBGEN LAKE	8	77	77
MADISON RIVER BASIN	14	67	75

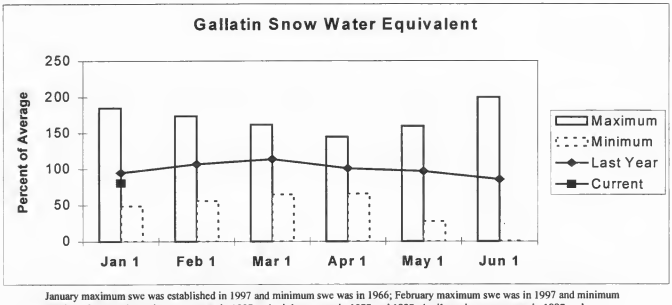
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

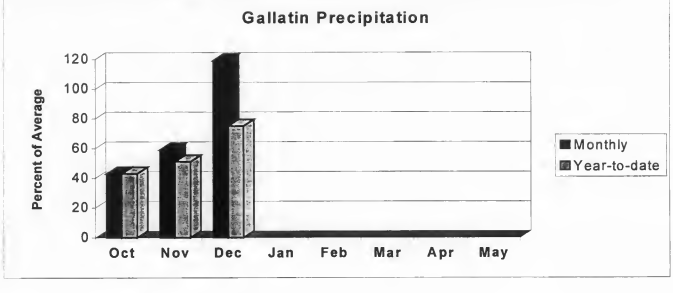
Gallatin River Basin

Snowpack conditions in the Gallatin River Basin were below average. Snow water content was 81 percent of average and 86 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1966; February maximum swe was in 1997 and minimum was in 1981; March maximum swe was in 1997 and minimum was in 1977 and 1987; April maximum swe was in 1997 and minimum was in 1987; May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1975 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during December was 115 percent of average and 131 percent of last year. Valley precipitation during December was 130 percent of average and 130 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 75 percent of average and 86 percent of last year.



Middle Creek storage was not available.

GALLATIN RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GALLATIN RIVER nr Gateway	APR-JUL	280	340	380	86	420	480	440
	APR-SEP	332	399	445	86	491	558	518
HYALITE RESERVOIR Inflow	APR-JUL	13.5	17.1	19.5	85	22	26	23
	APR-SEP	15.6	19.4	22	85	25	28	26
HYALITE CREEK nr Bozeman (2)	APR-JUL	21	27	31	86	35	42	36
	APR-SEP	25	31	36	86	41	48	42
GALLATIN RIVER at Logan (2)	APR-JUL	211	333	415	83	497	619	498
	APR-SEP	254	388	480	83	572	706	581

GALLATIN RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MIDDLE CREEK		NO REPORT		

GALLATIN RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER GALLATIN	4	75	85
HYALITE	2	100	73
BRIDGER	2	106	81
GALLATIN RIVER BASIN	8	86	81

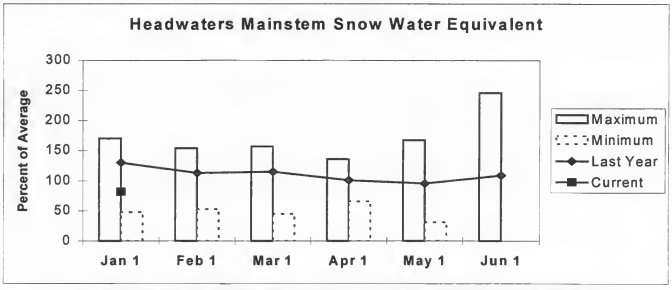
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

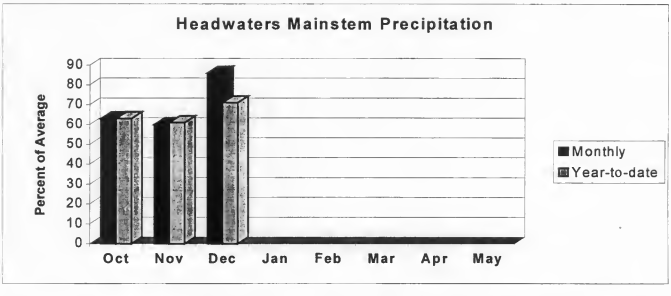
Missouri Mainstem River Basin

Snowpack conditions for the Missouri Mainstem are below average. Snow water content is 81 percent of average and 61 percent of last year. Snowpack in the Headwaters Missouri Mainstem River Basin were below average. Snow water content was 82 percent of average and 66 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1961; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during December was 111 percent of average and 94 percent of last year. Valley precipitation during December was 23 percent of average and 41 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 71 percent of average and 57 percent of last year.



Canyon Ferry Lake storage was 93 percent of average and 94 percent of last year; Helena Valley storage was 88 percent of average and 94 percent of last year; Lake Helena storage was 107 percent of average and 100 percent of last year; Hauser & Helena storage was 103 percent of average and 100 percent of last year; Holter Lake storage was 106 percent of average and 100 percent of last year; and Fort Peck Lake storage was 101 percent of average and 99 percent of last year.

MISSOURI MAINSTEM RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<------- Drier ------- Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	Future Conditions 50% (Most Probable) (1000AF)	(% AVG.)	Wetter ------->> 30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
MISSOURI RIVER at Toston (2)	APR-JUL	732	1198	1515	73	1832	2298	2075
	APR-SEP	846	1437	1770	73	2103	2706	2416
PRICKLY PEAR CREEK nr Clancy	APR-JUL	6.6	11.9	15.5	67	19.1	24	23
	APR-SEP	7.4	13.8	18.2	67	23	29	27
GIBSON Reservoir Inflow	APR-JUL	232	338	410	86	482	588	478
	APR-SEP	266	379	455	87	531	644	526
MISSOURI RIVER at Fort Benton (2)	APR-JUL	972	1647	2105	68	2563	3238	3087
	APR-SEP	1434	2010	2560	70	3110	4266	3678
MARIAS RIVER nr Shelby (2)	APR-JUL	83	239	345	77	451	607	447
	APR-SEP	98	257	365	75	473	632	487
MISSOURI RIVER at Virgelle (2)	APR-JUL	670	1721	2435	68	3149	4200	3595
	APR-SEP	1771	2206	2920	69	3634	5313	4217
MISSOURI RIVER nr Landusky (2)	APR-JUL	1300	2122	2680	69	3238	4060	3897
	APR-SEP	1969	2490	3220	70	1969	5908	4580
MISSOURI RIVER below Fort Peck (2)	APR-JUL	849	1936	2675	67	3414	4501	4015
	APR-SEP	1787	2129	3070	69	4011	5762	4467
LAKE SAKAKAWEA Inflow (2)	APR-JUL	3735	5655	6960	70	8265	10185	9897
	APR-SEP	4538	6340	7930	70	9520	12934	11346

MISSOURI MAINSTEM RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CANYON FERRY LAKE	2043.0	1575.0	1684.0	1690.0
HELENA VALLEY	9.2	4.5	4.8	5.1
LAKE HELENA	10.4	11.1	11.1	10.4
HAUSER & HELENA	61.9	63.6	63.6	61.7
HOLTER LAKE	81.9	81.1	81.2	76.7
FORT PECK LAKE (MAF)	18.9	15.3	15.5	15.1

MISSOURI MAINSTEM RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Sites	This Yeer as % of Last Yr	Averege
HEADWATERS MAINSTEM	8	66	82
SMITH-JUDITH-MUSSELSHELL	8	85	94
SUN-TETON-MARIAS	7	50	75
MAINSTEM ab FT PECK RES	22	64	83
MILK RIVER BASIN	4	23	43
MISSOURI MAINSTEM BASIN	25	61	81

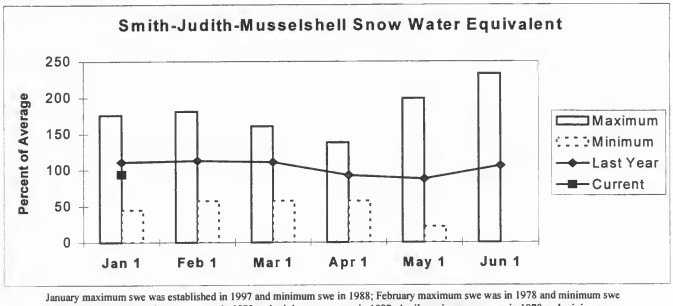
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding ere actually 5% and 95% exceedance levels.
(2) - The velue is naturel volume - actual volume may be affected by upstream water manegement.

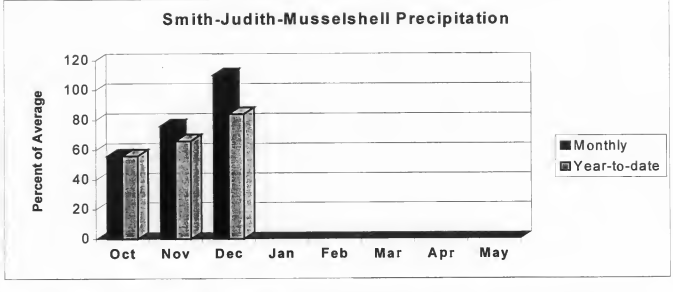
Smith-Judith-Musselshell River Basins

Snowpack conditions in the Smith-Judith-Musselshell River Basins were near average. Snow water content in the Smith River Basin was 95 percent of average and 77 percent of last year; in the Judith River Basin was 101 percent of average and 95 percent of last year; and in the Musselshell Basin River was 85 percent of average and 90 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1988; February maximum swe was in 1978 and minimum swe was in 1987; March maximum swe was in 1978 and minimum swe was in 1987; April maximum swe was in 1970 and minimum swe was in 1992; and May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during December in the Smith-Belts was 117 percent of average and 87 percent of last year; in the Judith was 105 percent of average and 83 percent of last year; and in the Musselshell was 113 percent of average and 77 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 108 percent of average and 158 percent of last year.



Smith River storage was 69 percent of average and 60 percent of last year; Newlan Creek storage was not available; Bair storage was 49 percent of average and 64 percent of last year; Martinsdale storage was 103 percent of average and 90 percent of last year; and Deadman's Basin was 103 percent of average and 83 percent of last year.

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<------- Drier ------ Future Conditions ------- Wetter ------>> 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SHEEP CREEK nr White Sulphur Spgs.	APR-JUL	12.5	15.8	18.0	99	20	24	18.1
	APR-SEP	14.9	18.5	21	100	24	27	21
SMITH RIVER abv Eagle Creek	APR-JUL	113	147	170	97	193	227	175
	APR-SEP	131	172	200	95	228	269	210
NF MUSSELSHELL nr Delpine	APR-JUL	2.01	3.67	4.80	100	5.93	7.59	4.80
	APR-SEP	2.43	4.32	5.60	100	6.88	8.77	5.60
SF MUSSELSHELL abv Martinsdale	APR-JUL	6.2	22	37	71	52	74	52
	APR-SEP	6.7	24	40	71	56	79	56
MUSSELSHELL at Harlowton (2)	APR-JUL	20	45	62	78	79	104	80
	APR-SEP	21	47	64	77	82	107	83
MUSSELSHELL nr Roundup (2)	APR-JUL	18.0	50	72	69	94	126	104
	APR-SEP	17.0	50	72	69	94	127	105

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SMITH RIVER	10.6	4.1	6.8	5.9
NEWLAN CREEK		NO REPORT		
BAIR	7.0	1.8	2.8	3.7
MARTINSDALE	23.1	9.5	10.6	9.2
DEADMAN'S BASIN	72.2	41.6	50.3	40.3

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SMITH	4	77	95
JUDITH	4	95	101
MUSSELSHELL	3	90	85
SMITH-JUDITH-MUSSELSHELL	8	85	94

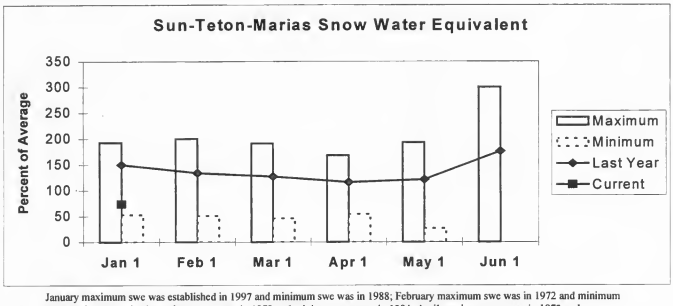
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

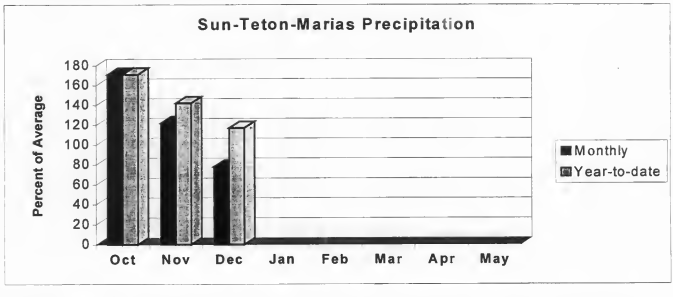
Sun-Teton-Marias River Basins

The combined snowpack conditions for the Sun-Teton-Marias River Basins were below average. Snow water content was 75 percent of average and 50 percent of last year. Snow water content in the Sun River Basin was 80 percent of average and 50 percent of last year; in the Teton River Basin was 71 percent of average and 47 percent of last year; and in the Marias River Basin was 73 percent of average and 50 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1984; April maximum swe was in 1972 and minimum swe was in 1984; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during December in the Sun was 73 percent of average and 47 percent of last year; in the Teton was 79 percent of average and 47 percent of last year; and in the Marias was 79 percent of average and 51 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 117 percent of average and 93 percent of last year.



Gibson storage was 106 percent of average and 144 percent of last year; Pishkun storage was 109 percent of average and 98 percent of last year; Willow Creek storage was 25 percent of average and 18 percent of last year; Lower Two Medicine Lake storage was 183 percent of average; Four Horns Lake storage was 105 percent of average and 140 percent of last year; Swift storage was 78 percent of average and 75 percent of last year; Lake Frances storage was 37 percent of average and 54 percent of last year; and Lake Elwell (Tiber) storage was 137 percent of average and 110 percent of last year.

SUN-TETON-MARIAS RIVER BASINS
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GIBSON Reservoir Inflow	APR-JUL	232	338	410	86	482	588	478
	APR-SEP	266	379	455	87	531	644	526
TWO MEDICINE RIVER nr Browning	APR-JUL	87	145	185	86	225	283	215
	APR-SEP	96	155	195	86	235	294	228
BADGER CREEK nr Browning (2)	APR-JUL	47	73	90	87	107	133	104
	APR-SEP	59	86	105	88	124	151	120
SWIFT RESERVOIR Inflow	APR-JUL	29	48	60	88	73	91	68
	APR-SEP	37	57	70	88	83	103	80
DUPUYER CREEK nr Valier	APR-JUL	0.8	6.3	13.0	84	19.7	30	15.5
	APR-SEP	0.7	7.3	14.5	83	22	32	17.4
CUT BANK CREEK at Cut Bank	APR-JUL	40	59	72	83	85	104	87
	APR-SEP	46	66	80	83	94	114	96
MARIAS RIVER nr Shelby (2)	APR-JUL	83	239	345	77	451	607	447
	APR-SEP	98	257	365	75	473	632	487

SUN-TETON-MARIAS RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GIBSON	99.1	43.3	30.0	41.0
PISHKUN	32.0	19.5	19.9	17.9
WILLOW CREEK	32.2	5.1	28.0	20.8
LOWER TWO MEDICINE LAKE	11.9	11.9	0.0	6.5
FOUR HORNS LAKE	19.2	13.0	9.3	12.4
SWIFT	30.0	10.8	14.4	13.8
LAKE FRANCES	112.0	25.6	47.6	69.6
LAKE ELWELL (TIBER)	1347.0	808.2	734.0	590.6

SUN-TETON-MARIAS RIVER BASINS
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SUN	2	50	80
TETON	3	47	71
MARIAS	4	50	73
SUN-TETON-MARIAS	7	50	75

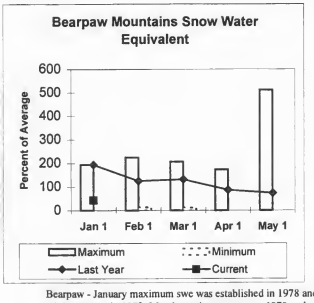
* 90%, 70%, 30%, and 10% chancas of exceading are the probabilities that the actual volume will exceed the volumes in the table.

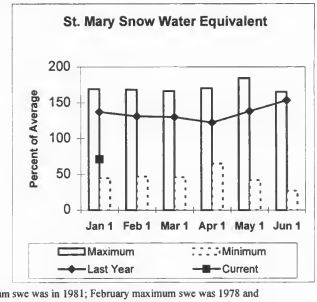
Tha average is computed for the 1961-1990 base period.

(1) - The values listed undar tha 10% and 90% Chanca of Exceeding are actually 5% and 95% exceedance levels.
(2) - The valua is naturel volume - actual volume may ba affected by upstream water management.

St. Mary and Milk River Basins

Snowpack conditions in the St. Mary and Milk River Basins were well below average. Snow water content in the Saint Mary River Basin was 71 percent of average 52 percent of last year. The Milk River Basin (Bearpaw Mountains) was 43 percent of average and 23 percent of last year.

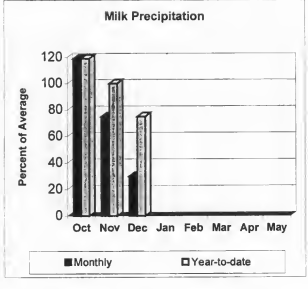


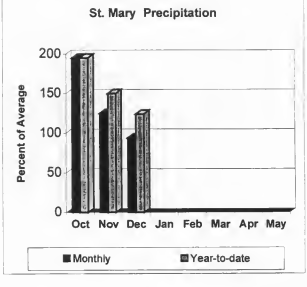


Bearpaw - January maximum swe was established in 1978 and minimum swe was in 1981; February maximum swe was 1978 and minimum was in 1973; March maximum swe was 1978 and minimum swe was 1981; April maximum swe was in 1975 and minimum swe was in 1983; May maximum swe was 1975 and the minimum has occurred in several years. Average is for the period 1961 through 1990.

St. Mary - January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1992; May maximum swe was in 19972 and minimum swe was in 1977; and June maximum swe was in 1991 and minimum swe was 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation in the St. Mary River Basin during December was 94 percent of average and 61 percent of last year; and in the Milk River Basin during December was 30 percent of average and 20 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 104 percent of average and 76 percent of last year.





Lake Sherburne storage was 90 percent of average and 201 percent of last year; Fresno storage was 81 percent of average and 89 percent of last year; Beaver Creek storage was 150 percent of average and 100 percent of last year; and Nelson storage was 105 percent of average and 106 percent of last year.

ST. MARY and MILK RIVER BASINS
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LAKE SHERBURNE Inflow	APR-JUL	77	88	95	89	102	113	107
	APR-SEP	92	103	110	88	117	128	125
ST. MARY RIVER nr Babb (2)	APR-JUL	267	307	335	85	363	403	395
	APR-SEP	322	365	395	85	425	468	463
ST. MARY RIVER at US/CAN Border (2)	APR-JUL	302	360	400	87	440	498	462
	APR-SEP	367	428	470	87	512	573	539
MILK RIVER at Western Crossing (3)	MAR-JUL	8.7	13.1	24	59	36	41	42
	MAR-SEP	10.6	14.4	26	57	38	47	46
MILK RIVER @ Milk River, AB (2,3)	MAR-JUL	21		49	76		64	64
	MAR-SEP	22		53	76		70	69
MILK RIVER at Eastern Crossing (2,3)	MAR-JUL	26		61	72		84	85
	MAR-SEP	30		66	71		96	93
BEAVER CREEK near Havre	MAR-JUL	1.0	3.6	7.5	73	11.4	17.2	10.3

ST. MARY and MILK RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LAKE SHERBURNE	64.3	18.9	9.4	21.1
FRESNO	127.0	43.1	48.2	53.1
BEAVER CREEK	3.5	2.7	2.7	1.8
NELSON	66.8	39.8	37.7	38.0

ST. MARY and MILK RIVER BASINS
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
ST. MARY	2	52	71
BEARPAW MOUNTAINS	4	23	43
CYPRESS HILLS, CANADA	0	0	0
MILK RIVER BASIN	4	23	43
ST. MARY & MILK BASINS	6	44	64

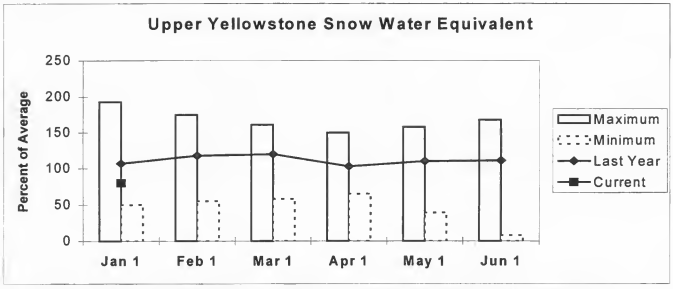
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Forecasts produced in cooparation with Alberta Forecasting Staff Canada

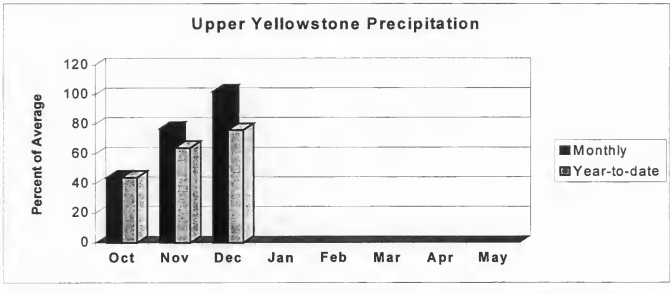
Upper Yellowstone River Basin

Snowpack conditions in the Upper Yellowstone River Basin were below average. Snow water content was 80 percent of average and 75 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1997 and minimum swe was in 1977; April maximum swe was in 1971 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1987; and June maximum swe was 1982 and minimum swe was in 1987 and 1994. Average is for the period 1961 through 1990.

Mountain precipitation during December was 105 percent of average and 95 percent of last year. Valley precipitation during December was 55 percent of average and 42 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 76 percent of average and 73 percent of last year.



Mystic Lake storage was 64 percent of average and 95 percent of last year and Cooney storage was 121 percent of average and 99 percent of last year.

UPPER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Watter ======>> 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
YELLOWSTONE at Lake Outlet	APR-JUL	256	339	395	69	451	534	573
	APR-SEP	340	447	520	66	593	700	792
YELLOWSTONE RIVER at Corwin Spgs.	APR-JUL	770	961	1090	68	1219	1410	1609
	APR-SEP	948	1166	1315	68	1464	1682	1937
YELLOWSTONE RIVER near Livingston	APR-JUL	850	1088	1250	67	1412	1650	1855
	APR-SEP	1041	1323	1515	68	1707	1989	2241
SHIELDS RIVER nr Livingston	APR-JUL	19.0	73	110	68	147	201	162
	APR-SEP	19.0	79	120	67	161	221	179
BOULDER RIVER at Big Timber	APR-JUL	162	211	245	73	279	328	335
	APR-SEP	171	224	260	71	296	349	364
MYSTIC LAKE Reservoir Inflow (2)	APR-JUL	43	50	54	89	58	65	61
	APR-SEP	57	64	69	87	74	82	79
STILLWATER RIVER nr Absarokee (2)	APR-JUL	304	370	415	83	460	526	498
	APR-SEP	372	445	495	84	545	618	593
CLARKS FORK RIVER nr Belfry	APR-JUL	363	427	470	88	513	577	532
	APR-SEP	401	469	515	87	561	629	590
COONEY RESERVOIR Inflow (2)	APR-JUL	4.4	21	33	70	45	62	47
	APR-SEP	9.8	27	39	68	51	68	57
YELLOWSTONE RIVER at Billings (2)	APR-JUL	1768	2311	2680	75	3049	3592	3577
	APR-SEP	2232	2751	3160	75	3569	4085	4211

UPPER YELLOWSTONE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MYSTIC LAKE	21.0	7.4	7.8	11.6
COONEY	27.4	16.9	17.0	14.0

UPPER YELLOWSTONE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
YELLOWSTONE ab LIVINGSTON	14	71	81
SHIELDS	4	97	72
BOULDER-STILLWATER	3	88	87
CLARK'S FORK-ROCK CREEK	8	76	83
UPPER YELLOWSTONE BASIN	25	75	80

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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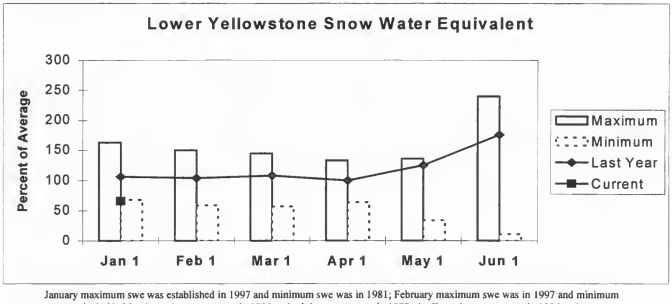
(2) - The value is natural volume - actual volume may be affected by upstream water management.

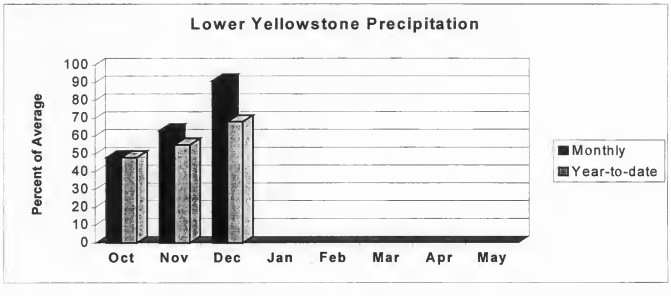
Lower Yellowstone River Basin

Snowpack conditions in the Lower Yellowstone River Basin, in Wyoming, were well below average. Snow water content was 66 percent of average and 62 percent of last year and at a new record low for January 1.



January maximum swe was established in 1997 and minimum swe was in 1981; February maximum swe was in 1997 and minimum swe was in 1981; March maximum swe was in 1986 and minimum swe was in 1977; April maximum swe was in 1986 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1981; and June maximum swe was in 1995 and minimum swe was in 1994. Average is for the period 1961 through 1990.

Mountain and valley precipitation during December was 91 percent of average and 90 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 68 percent of average and 54 percent of last year.



Bighorn Lake storage was 108 percent of average and 102 percent of last year and Tongue River storage was 138 percent of average and 619 percent of last year. Tongue Reservoir averages appear high due to the completion of raising the dam elevation.

LOWER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - January 1, 2000

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
YELLOWSTONE RIVER at Billings (2)	APR-JUL	1768	2311	2680	75	3049	3592	3577
	APR-SEP	2232	2751	3160	75	3569	4085	4211
BIGHORN RIVER nr St. Xavier (2)	APR-JUL	608	883	1070	65	1257	1532	1645
	APR-SEP	520	972	1194	67	1416	1776	1794
LITTLE BIGHORN RIVER nr Hardin	APR-JUL	51	80	100	71	120	149	140
	APR-SEP	57	89	110	70	131	163	157
TONGUE RIVER RESERVOIR Inflow (2)	APR-JUL	82	137	175	76	213	268	230
	APR-SEP	98	156	195	76	234	292	256
YELLOWSTONE RIVER at Miles City (2)	APR-JUL	2271	3182	3800	70	4418	5329	5431
	APR-SEP	2638	3722	4450	71	5178	6155	6281
POWDER RIVER at Moorehead	APR-JUL	19.0	79	120	57	161	221	211
	APR-SEP	32	94	135	58	176	238	232
POWDER RIVER near Locate	APR-JUL	19.0	82	125	50	168	231	252
	APR-SEP	28	89	138	50	187	320	276
YELLOWSTONE RIVER nr Sidney (2)	APR-JUL	2280	3322	4030	68	4738	5780	5925
	APR-SEP	2657	3860	4705	69	5550	6746	6814

LOWER YELLOWSTONE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BIGHORN LAKE	1356.0	960.3	944.1	891.8
TONGUE RIVER	68.0	35.9	5.8	26.0

LOWER YELLOWSTONE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2000

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WIND RIVER (Wyoming)	11	42	46
SHOSHONE RIVER (Wyoming)	6	55	69
BIGHORN RIVER (Wyoming)	16	67	72
LITTLE BIGHORN (Wyoming)	2	119	89
TONGUE RIVER (Wyoming)	5	104	85
POWDER RIVER (Wyoming)	6	95	82
LOWER YELLOWSTONE BASIN (	28	64	66

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Montana
Basin Outlook Report

Natural Resources Conservation Service
Bozeman, MT